Clinical Outcomes from a 10-week follow-up psychoeducational programme for dual diagnosis

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Abstract

Background: Dual diagnosis covers a broad spectrum of mental health and substance misuse conditions occurring concurrently (NICE, 2016). Its manifestation is complex and as such the disorder is recognized as influencing adherence to prescribed medication, service engagement and has a worse prognosis than substance use and mental health conditions occurring independently.

Aims: To determine the effectiveness of psycho-educational group therapy on a sample of dual diagnosis patients.

Methods: Patients who met the DSM-IV Axis 1 criteria for serious mental illness and current substance misuse were approached to take part in a psycho-educational programme. Those who consented were assessed at baseline and end-point using measures of psychiatric symptomology, psychological well-being and substance use patterns with the following scales; Brief Psychiatric Rating Scale (BPRS), Hospital Anxiety and Depression Rating Scale (HADS), Maudsley Addiction Profile Scale (MAPS) and the Warwick and Edinburgh Mental Well-being Scale (WEMWBS).

Results: Fifty-one patients completed the programme whilst 29 dropped out after initial assessment. Between baseline and follow-up there was a decline in the number of participants using alcohol, cannabis, cocaine, amphetamine, illicit benzodiazepines and methadone. However, the number of participants using heroin remained constant. The mean amount of substances used did not reduce over the study period except in the case of alcohol. Overall improvements in symptomology and psychological well-being were observed.

Discussion: Mental health services should focus on integrated approaches via multimodal treatment interventions that encapsulate harm reduction and educational initiatives: Despite the modest sample, the findings have emphasised the importance of a broad range of treatment approaches delivered within a unitary delivery system.

Introduction

The term dual diagnosis covers a broad spectrum of mental health and substance misuse conditions occurring concurrently (NICE, 2016). The manifestation of these two conditions is often varied, complex and can modify over time because of changes in the use of licit and illicit substances which impact on symptom profile. The disorder is also recognized as influencing adherence to prescribed medication, service engagement and has a worse prognosis than substance use and mental health conditions occurring independently (Bellack, Bennett, Gearon, Brown, & Yang, 2006).

The epidemiological nature of dual diagnosis is multifaceted in which diagnostic complexity is viewed as the expectation rather than the exception within clinical practice (C. T. Jackson, Covell, Drake, & Essock, 2007; Minkoff, 2013). Substance misuse among psychiatric spectrum disorders is widespread (NICE, 2016). Current estimates in the United Kingdom (UK) suggest that a third of patients with Serious Mental Illness (SMI) have an active Substance Use Disorder (SUD) encompassing an expansive range of psychopathology; including schizophrenia, mood, dissociative and personality syndromes (Health, 2006). Engaging the dual diagnosis patient population in therapeutic intervention presents a number of complex challenges for mental health services (Cochrane, 2008; Derry, 200). Studies indicate that treatment dropout rates are high (Bellack et al., 2006; Gobbart, 2013), with contributing factors including chaotic and complex lifestyles (Barrowclough et al., 2007). In addition, there is often a decline in mental and physical functioning due to substance misuse exacerbating psychological and emotional conditions. This, in turn, leads to increasingly poor levels of functioning and disengagement with services (Minkoff & Cline, 2005). The clinical

challenges therefore require a flexible and pragmatic treatment approach that meets the multifarious demands of this patient population (NICE, 2011a, 2011b, 2014).

Psychotherapeutic models of practice incorporate a number of treatment methods including motivational enhancement therapy, harm-minimisation and group psychotherapy. These can be deployed alongside more traditional and stronger evidence based methods such as Cognitive Behavioural Therapy (CBT) and pharmacotherapy, which is regarded as operationally efficacious for individuals with a range of co-morbid conditions (NICE, 2014). Drug prevention and harm reduction models of care, which are embedded in group psychotherapy, are acknowledged as being beneficial in supporting a holistic and integrated approach to mainstream service provision, which promotes an individual's mental and physical well-being (Walker et al, 2013). There are a number of service models delivered in a variety of service configurations; however, two approaches, which currently influence clinical practice, are the parallel and sequential models (NICE, 2016). The former is where an individual is treated independently by a mental health or substance misuse service. The sequential model infers primacy of either the mental health or substance misuse problem, thereby treating one before the other. The program, which forms the basis of this evaluation, is novel and distinct from parallel and sequential models because it combines both mental health and substance misuse treatment provided by the same team of clinicians at the same time. The potential advantages of such an integrated and holistic approach are that both elements of the dual problems are given due attention in one setting. Psycho-educational group therapy programs grounded in multimodal integrated treatment approaches affords participants the capacity to change patterns of substance use and their concomitant effects on mental health by addressing both problems simultaneously (Bellack et al., 2006; Gobbart, 2013; Sibitz, Amering, Gössler, Unger, & Katschnig, 2007; Weiss et al., 2007). Therapeutic

group settings comprise a range of implicit protective factors that are considered beneficial in reducing an array of environmental and situational stressors (e.g. stigma, victimisation and prejudice), often encountered by people with mental health and substance misuse conditions (Tay, 2011). Therefore, participation in group psychotherapy provides a series of positive opportunities for participants to experience durable social support structures that augment therapeutic approaches such as harm reduction and health education, supporting the effective management of individuals with complex health care needs.

Psychoeducational therapy contributes to a broader treatment perspective by blending therapeutic approaches and intervention techniques alongside standard treatment provision. This provides individuals the opportunity to enhance their understanding of their complex clinical presentations and the potential for sustaining long-term beneficial change within a supportive social milieu (Dixon, Holoshitz, & Nossel, 2016). The aim of the study was to examine the efficacy of psychoeducational treatment provision in a dual diagnosis population.

Methods

Psycho-Educational Group (PEG) Therapy for Dual Diagnosis

The PEG treatment program was developed as a partnership outreach project between state and non-state services working with dual diagnosis patients. It provides individuals with an opportunity to access and engage in an integrated treatment intervention, which recognises the complex needs of this population. The program is based around psycho-educational, harm reduction, motivational and goal setting techniques which were adapted from a

recovery based dual diagnosis treatment manual (Derry, 2008). Inclusion in the program was based on levels of motivation and engagement in the treatment process as measured by the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) (Derry, 2008; Miller & Tonigan, 1996). The PEG therapy model aimed to increase participants' capacity to change their pattern of substance misuse and to provide relevant information concerning aspects of mental and physical well-being. It introduced the concepts of relapse prevention and harm reduction, identifying common threats to maintaining aspects of clinical and personal recovery (See Table 1). The treatment model subsequently supported transformative skill building via threshold learning processes, for example assertiveness training to modify maladaptive behaviours. This assisted individuals to maintain a restorative focus on their psychopathology, supported by effective socialisation processes within a therapeutic framework (Wertshc, 1986). Treatment comprised of weekly, two-hour sessions during afternoon periods, with each program lasting 10 weeks per group. The maximum size of each group was set at 12 participants to ensure it was large enough to enable all involved to engage effectively (Morgan & Carson, 2009). Once the group program commenced, it was closed to new members and those who wanted to join were put on a waiting list. A total of eight programs were completed during the 18-month period of the evaluation. In order to generate a sense of ownership and control over the group, specific ground rules were agreed e.g. confidentiality, respect for fellow group members and punctuality. These group boundaries were decided collectively amongst participants as far as was practical and were reinforced at the commencement of each group session. Group sessions were led by four qualified Health Care Professionals (HCPs) trained in facilitating group therapy. They all had received additional Motivational Enhancement (ME) training prior to the study commencing. Fidelity of sessions was measured by regular debrief with all facilitators post group sessions and evaluation of facilitator performance and feedback post-group program.

Table 1. Psycho-Educational Group (PEG) Therapy Session Outline

Week	Session	Content
1	1	Introduction and PEG boundaries.
	2	Choice and empowerment.
2	1	Motivation to change.
	2	Overcoming barriers to change.
3	1	Understanding my substance misuse.
	2	How I use substances to affect my mood/behaviour.
4	1	Do substances affect my mental health?
	2	Substance use and mental health relapse.
5	1	Relapse prevention.
	2	Developing skills.
6	1	Relapse prevention planning.
	2	Coping with cravings.
7	1	Coping with emotions.
	2	Coping with symptoms and side effects.
8	1	Getting support.
	2	Skills practice.
9	1	Changing lifestyle and moving on.
	2	Skills role-play.
10	1	Relapse prevention and planning revisited.
	2	Group evaluation and provision of education pack.

Note. PEG = Psycho-Educational Group.

Recruitment to the PEG Program and Evaluation

Recruitment to the PEG evaluation initiated after participants met the inclusion criteria of working-age adults (ages 18-65) who met the DSM-IV Axis 1 criteria for Serious Mental Illness (SMI) and current substance misuse. All participants were assessed for appropriate mental health clustering by their medical consultant and care coordinator. Letters of invitation were forwarded to potential participants to participate in the assessment interview. The information obtained at the interview was primarily to ascertain whether a potential participant met the inclusion criteria, wanted to engage in the study and was able to provide informed consent. Copies of the patient information sheet were provided to assist potential participants to make an informed decision regarding participation in the study. A free post-return envelope was provided in order that potential participants could return the signed

consent form after the assessment interview. Once consent was obtained participants were given a two week cooling off period in which to re-consider participation in accordance with the guidelines stipulated in the Cochrane handbook for undertaking research in health care settings (Cochrane, 2008). Patients were recruited from a variety of community mental health sources, e.g., Assertive Outreach Teams and Early Intervention Teams. All participants were able to withdraw from the research process at any stage by contacting a member of the research team. The study was granted ethical approval from the National Health Service Ethics Committee in July 2009.

Over an 18-month period, 80 patients agreed to participate in both the program and evaluation. However, subsequent to their consent and initial engagement in the program, 29 patients dropped out leaving a sample of 51 to complete both the PEG program and evaluation. The most common reasons for withdrawal were lack of transport access to allow attendance at PEG sessions, conflict of group timings with work schedules, and treatment and non-treatment side effects.

Assessment Measures

There were four assessment measures used in this study:

i) The Hospital Anxiety and Depression Rating Scale (HADS) (Zigmond & Snaith, 1983) is a 14 item self-assessment scale designed to detect states of depression, anxiety and emotional distress. Items are scored from 0-3, the higher the score indicating worse symptomatology. Symptom frequency scores for each subscale (anxiety and depression) range from 0-21, with scores categorised as normal (0-7), mild (8-10), moderate (11-14), and severe (15-21). Scores for the entire scale (emotional distress) range from 0-42, with higher scores indicating additional

distress. The scale is shown to have sound reliability and validity (McDowell, 2006), and has previously been used in dual diagnosis research (Manning et al., 2009).

ii) The Brief Psychiatric Rating Scale (BPRS) (Overall & Gorham, 1962) is a clinician-rated tool designed to assess the severity of a wide range of mental health symptoms associated with psychotic disorders including positive, negative and affective symptoms. The 24 item version of this scale was used in the current study (Lukoff, Liberman, & Nuechterlein, 1986). Each item is scored on a 0-7 Likert scale ranging from 'not present' to 'extremely severe' and provides a continuous total score (0-168). Principal component analyses have indicated that the scale items can be categorised according to Positive and Negative symptoms as well as Mania and Depression (Ventura, Nuechterlein, Subotnik, Gutkind, & Gilbert, 2000), whilst other authors have identified Disorientation as a distinct component (Dingemans, Linszen, Lenior, & Smeets, 1995). The measure has sound psychometric properties (Zigmond & Snaith, 1983), and has been previously used in a similar population group (Baker et al., 2006).

iii) The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) (Tennant et al., 2007) is a measure of mental well-being focusing entirely on positive aspects of mental health. The scale consists of 14 items on a five-point scale ranging from 1-5 with the range of scores between 14 and 70. A higher score indicates a higher level of mental well-being. The scale demonstrates good properties of reliability and validity, and has been used in a dual diagnosis population previously (Ujhelyi et al., 2016).

iv) The Maudsley Addiction Profile (MAP) (Tennant et al., 2007) is a brief multi-dimensional instrument designed to assess longitudinal treatment outcomes of

individuals with substance misuse problems. The MAP presents a snapshot of an individual over a 30-day interval, comprising areas of health risk and social functioning. It is used extensively in addiction treatment outcome research and can be used to provide a comprehensive measure of an individual's current substance misuse. Higher scores indicate elevated levels of problem severity. The instrument demonstrates good psychometric properties (Barbieri, 2003).

Tools were administered pre-intervention as part of the induction process, post-intervention data were collected during the final week of the PEG.

Descriptive and Inferential Statistics

Analyses were completed using the Statistical Package for the Social Sciences for Windows (SPSS-version 19) (Gray & Kinnear, 2012). Descriptive statistics were used to show frequency and percentage data relating to demographic and diagnostic characteristics, proportion of patients using substances, mean amounts of substances used and mean symptom scores. Independent samples t-tests were used to compare those who completed the study (Completers) with those who did not (Dropouts) on measures of; age, dosage of prescribed medication, amount used of non-prescribed substances, mental health and well-being. Paired samples t-tests were used to compare pre and post-intervention scores for the completer group on the amount used of non-prescribed substances and on all measures of mental health and well-being.

Results

Our study sample comprised 51 patients who completed the PEG program, whilst another 29 patients failed to complete the intervention. Within psychiatric research, it is important to study the demographic and clinical characteristics of the dropout group, as well as the completer group because this tells us how representative the completing sample are of the wider population sample under investigation. It can also provide important information as to the suitability of the intervention for all patients within the target population.

Demographic and Diagnostic Characteristics: Completers vs Dropouts

As can be seen in Table 2, age and gender distribution were similar between dropouts and completers. Within ICD10 Primary Diagnosis, there were some differences between groups, with a much larger representation of F10-F19 disorders (disorder due to psychoactive substance use) for the completing group, whilst the dropout group had their majority representation within the F20-F29 classification (schizophrenia and delusional disorders). For ICD 10 Secondary Diagnosis, the completer group had their highest prevalence rates within two categories, F10-F19 (disorder due to psychoactive substance use) and F40-F48 (neurotic stress related and somatoform disorders). In contrast, the dropout group had their highest representation within the schizophrenia and delusional disorder group.

Table 2. Comparison of demographic and diagnostic characteristics between patients completing the study and those who dropped out.

Demographic and Diagnostic Characteristics	**Completers (*n* = 51)**	**Drop-outs (*n* = 29)**
Age – mean (*SD*)	34.51 (8.8)	38.03 (9.0)
Gender – (male: female, %)	54.9: 45.1	65.6: 34.5
ICD 10 Primary Diagnosis (%)		
Mental Behaviour Disorder Due to Psychoactive Substance Use (F10-F19)	58.8	3.4
Schizophrenia and Delusional Disorders (F20-F29)	23.5	55.2
Mood Affective Disorders (F30-F39)	9.8	34.5
Neurotic Stress Related and Somatoform Disorders (F40-F48)	7.8	6.9
ICD 10 Secondary Diagnosis (%)*		
Mental Behaviour Disorder Due to Psychoactive Substance Use (F10-F19)	35.3	3.4
Schizophrenia and Delusional Disorders (F20-F29)	11.8	55.2
Mood Affective Disorders (F30-F39)	15.7	34.5
Neurotic Stress Related and Somatoform Disorders (F40-F48)	35.3	6.9
ICD 10 Tertiary Diagnosis (%)		
Mental Behaviour Disorder Due to Psychoactive Substance Use (F10-F19)	5.9	-
Schizophrenia and Delusional Disorders (F20-F29)	-	-
Mood Affective Disorders (F30-F39)	-	-
Neurotic Stress Related and Somatoform Disorders (F40-F48)	19.6	6.9
Not Used	74.5	93.1

Note. * ICD 10 Secondary Diagnosis Data missing for 2 participants in the completer group.

Prescribed Medication: Completers vs Dropouts

A higher percentage of completers were prescribed opiates (9 vs. 6%), benzodiazepines (7 vs. 6%), antidepressants (60 vs. 51%) and antipsychotics (20 vs. 17%) than dropouts. However, there was an observable trend for the dropout group to be prescribed higher doses of all medications except antidepressants, although this difference did not reach statistical significance for any medication ($p > .05$).

Substance Use: Completers vs Dropouts

The most frequently used substance was alcohol across both groups and a similar percentage of completers and dropouts had used this substance in the 30 days prior to the study (Table 3). An independent samples t-test comparing the amount of alcohol used between groups showed that the completers consumed more units of alcohol than the dropouts (24.70 vs. 16.58 units; t (50) = 3.22, p = .002). The second most frequently used substance was

cannabis with a higher percentage of completers using this substance compared to dropouts. However, the number of ounces of cannabis used per day did not differ between groups (.308 vs. .206 ounces; t (34) = 0.82, p = .41). The third most common substance used across both groups was heroin, with a lower percentage of completers using this substance compared to dropouts. The number of grams of heroin used per day did not differ between groups (.285 vs .343 grams; t (13) = - 0.97, p = .34). Although the number of users of illicit methadone, illicit benzodiazepines, cocaine and amphetamine was low within both groups, more completers compared to dropouts used all substances. The low subject numbers do not permit reliable statistical analyses between these groups on the amount of these substances used.

Table 3. Comparison of substance use between completers and drop-outs

Substance	**Participants Using Substance *N* (%)**		**†Amount used Mean (*SD*)**	
	Completers	Drop-outs	Completers	Drop-outs
Alcohol	33 (64.7)	19 (65.5)	24.70 (10.24)	16.58 (5.05)*
Heroin	7 (13.7)	8 (27.6)	0.28 (0.09)	0.34 (0.12)
Illicit Methadone	2 (3.9)	1 (3.4)	10.00 (0)	10.00 (-)
Illicit Benzodiazepines	5 (9.8)	4 (13.8)	10.00 (5.00)	12.40 (5.00)
Cocaine	9 (17.6)	4 (13.8)	Missing Data	
Amphetamine	5 (9.8)	2 (6.9)	0.75 (0.77)	0.37 (0.17)
Cannabis	25 (49)	11 (37.9)	0.30 (0.37)	0.20 (026)

Note. *SD* = Standard deviation.
†Units of Measurement: Alcohol intake was measured in units, methadone and illicit benzodiazepines in mg, cocaine and amphetamine in grams and cannabis in ounces
*The difference in amount of alcohol used between completers and dropouts was statistically significant (p < .05)

Mental Health and Well-Being Measures: Completers vs Dropouts

In comparison to the completer group, the dropouts exhibited more severe negative, depressive, manic and disorientation symptoms according to the BPRS (p < .05). However, there were no statistically significant differences between groups on BPRS positive symptoms, nor on the HADS or WEMWBS. See table 4.

Table 4. Comparison of scores between completers and dropouts on mental health and well-being measures

Measure	Completers Mean (*SD*) *n* = 51	Drop-outs Mean (*SD*) *n* = 29	Difference	*t* (*df*)	*P* (two tailed)
BPRS Positive Symptoms	13.59 (4.91)	13.66 (4.27)	0.07	-0.06 (78)	.951
†BPRS Negative Symptoms	8.96 (2.58)	11.34 (3.23)	2.38	-3.29 (78)	.001*
BPRS Depression	15.39 (3.00)	17.31 (3.08)	1.92	-2.72 (78)	.008*
BPRS Mania	11.10 (3.62)	12.86 (4.02)	1.76	-2.01 (78)	.048*
BPRS Disorientation	3.61 (1.73)	4.45 (1.66)	0.84	-2.11 (78)	.037*
HADS - Anxiety	6.65 (3.86)	5.24 (2.43)	-1.41	1.76 (78)	.081
HADS-Depression	8.18 (3.28)	7.45 (2.48)	-0.73	1.03 (78)	.303
HADS -Total	14.82 (6.85)	12.69 (4.23)	-2.13	1.51 (78)	.133
‡WEMBWS	35.96 (5.25)	37.38 (3.66)	1.42	-1.28 (78)	.202

Note. BPRS = Brief Psychiatric Rating Scale; HADS = Hospital Anxiety and Depression Rating Scale; WEMWBS = Warwick Edinburgh Mental Well Being Scale; *SD* = Standard deviation.
Note. † reduced sample *n* = 50
‡Higher scores on the WEMBWS indicate improved mental well-being whilst lower scores on all other measures indicate improved mental health.
*$p < .05$

Completer Group: Comparison on all variables pre and post-intervention

Prescribed Medication: Completers Pre and Post-Intervention

The most commonly prescribed medications for patients at the start of the study were antidepressants (*n* = 31) and antipsychotics (*n* = 20) although five patients were prescribed opiates, four patients benzodiazepines and one patient lithium. The only change to this pattern at the end of the intervention was that one patient fewer was taking a benzodiazepine. In terms of medication dosage, this remained stable for all medications except that there was a slight decrease in the prescribed daily amount of antidepressant which approached statistical significance (31.61 mg vs. 28.39 mg; t (30) = 1.77, p = .086).

Substance Use: Completers Pre and Post-Intervention

The most commonly used substances both at pre-intervention and post-intervention were alcohol and cannabis, although there was a slight decline in the number of participants using each substance at post-intervention compared to pre-intervention (alcohol 33 vs. 30; cannabis 25 vs. 24). In terms of the other substances, there was a decline in the number of patients

using cocaine (9 vs. 4), illicit benzodiazepines (5 vs. 3) amphetamine (5 vs. 2) and illicit methadone (2 vs. 0). However, the number of participants using heroin remained constant over the study period (7 vs.7).

The amount of each illicit substance used per day remained stable over the study period except for alcohol where there was a mean decline of five units per day, which was statistically significant. A decline was also observed in the dosage of benzodiazepines, which approached statistical significance. See Table 5.

Table 5. Mean amount of substances used per day pre and post intervention (n = 50 for alcohol and cocaine but 51 for other substances)

Substance	**Pre-Intervention amount Mean (*SD*)**	**Post- Intervention amount Mean (*SD*)**	**Mean Change Score (*SD*)**	***t* (*df*)**	***P* (two tailed)**
Alcohol	15.70 (14.4)	10.70 (11.28)	- 5.00 (8.20)	4.3 (49)	*0.00**
Heroin	.0392 (.10)	.0392 (.10)	0 (0.5)	0.0 (50)	*1.00*
Illicit Methadone	.39 (1.96)	.00	-0.39 (1.96)	1.42 (50)	*0.15*
Illicit benzodiazepines	.98 (3.3)	.49 (2.06)	-0.49 (1.80)	1.94 (50)	*.058*
Cocaine	.08 (.29)	.02 (.06)	-0.06 (.28)	1.47 (49)	*0.14*
Amphetamine	.0735 (.31)	.0098 (.04)	-0.06 (.31)	1.46 (50)	*0.15*
Cannabis	.1513 (.30)	.1422 (.30)	-0.00 (.07)	0.03 (50)	*0.38*

Note. *SD* = Standard deviation. Units of Measurement: Alcohol intake was measured in units, methadone and illicit benzodiazepines in mg, cocaine and amphetamine in grams and cannabis in ounces
*$p < .001$

Mental Health and Well-Being Measures: Completers Pre and Post-Intervention

On all measures of psychiatric symptomology and mental well-being, there were statistically significant improvements over the study period. See Table 6.

Table 6. Mean scores on mental health and well-being measures pre and post intervention (n = 51 for all measures except BPRS negative symptoms where n = 50)

Measure	Pre Intervention (*SD*)	Post-Intervention (*SD*)	Mean Change Score (*SD*)	*t* (*df*)	*P* (two tailed)
BPRS – Positive Symptoms	13.59 (4.91)	10.53 (3.39)	-3.05 (5.54)	3.93 (50)	All *p* values <.001
BPRS – Negative Symptoms	8.96 (2.58)	7.10 (1.87)	-1.86 (2.64)	4.98 (49)	
BPRS Depression	15.39 (3.00)	12.51 (2.70)	-2.88 (3.80)	5.40 (50)	
BPRS Mania	11.10 (3.62)	8.92 (2.20)	-2.17 (3.57)	4.35 (50)	
BPRS Disorientation	3.61 (1.73)	2.65 (1.18)	-0.96 (1.83)	3.74 (50)	
HADS - Anxiety	6.65 (3.86)	4.92 (3.27)	-1.72 (2.99)	4.11 (50)	
HADS-Depression	8.18 (3.28)	6.71 (2.33)	-1.47 (2.31)	4.53 (50)	
HADS -Total	14.82 (6.85)	11.63 (5.35)	-3.19 (4.83)	4.72 (50)	
WEMBWS*	35.96 (5.25)	39.65 (4.36)	3.69 (4.87)	-5.39 (50)	

Note. BPRS = Brief Psychiatric Rating Scale; HADS = Hospital Anxiety and Depression Rating Scale; WEMWBS = Warwick Edinburgh Mental Well Being Scale; *SD* = Standard deviation.
*Higher scores on the WEMWBS indicate improved mental well-being whilst lower scores on all other measures indicate improved mental health.

Discussion

The aim of this study was to evaluate the effectiveness of a Psychoeducational Group (PEG) therapy program for individuals with dual diagnosis. The main findings were that completion of the PEG program resulted in significant improvements on all symptom and psychological well-being measures. Furthermore, the number of participants using all substances declined except in the case of heroin. The amount of alcohol used also declined over the study period. These findings are consistent with other research suggesting therapeutic programs are effective with dual-diagnosis populations (Bellack, Barnett, & Gearon, 2007; Gobbart, 2013). With regard to heroin, the use of this substance appears to be resistant to psychoeducational intervention. Despite the decline in the number of participants using all other substances, the use of alcohol and cannabis was still prevalent at the end of the intervention. This tendency for some of the group to 'self-medicate' whilst in treatment reinforces the clinical imperative of monitoring ongoing substance-use when treating individuals with dual-diagnoses. This might be particularly important for the most widely used substances at pre and post-intervention; alcohol and cannabis (Barnett et al., 2007; K. M. Jackson, Sher, & Schulenberg,

2008). Both substances are often associated with persistent and consistent levels of relapse and sustained substance misuse within mental health services, (Zammit et al., 2008). Indeed, Nutt (Nutt, King, & Nichols, 2013) states that the use of cannabis is a major risk factor in individuals with a predisposition to developing psychotic disorders who may react negatively to stressful life events by misusing substances. This may cause individuals to develop unhealthy and maladaptive management techniques, resulting in higher incidences of stress and social vulnerability. Nevertheless, these findings do suggest psychoeducation can have positive effects on mental health and psychological well-being, as well as on substance misuse patterns.

Our comparison of the completer group and the dropout group at baseline revealed that the dropouts had more severe mental health symptoms on most of the dimensions of the BPRS, but no differences were observed on the HADS nor our measure of psychological well-being. This is perhaps not surprising given that the majority of the dropouts were diagnosed with schizophrenia and delusional disorders, symptoms that the BPRS is particularly sensitive to. These findings suggest that some of the features of schizophrenia and delusional disorders may act as a barrier to sustained participation in a psychoeducational program. In terms of substance use differences between these groups, the completer group were more likely than the dropouts to use cannabis and more units of alcohol. In contrast, the dropout group had a higher percentage of patients using illicit benzodiazepines and heroin than the completers. The dependency liability of these drugs might have contributed to patients disengaging from the program, and it is useful to have identified the substances, which appear to hinder attempts at therapeutic intervention. To understand more about why participants in these groups dropped out, further research could be undertaken to seek their views to help inform future practice and strategies for treatment compliance.

The integration of services to meet the complex needs of individuals with serious mental health problems who use alcohol and drugs represents an ongoing challenge for clinical care. Participation of dual diagnosis patients in a 10-week PEG therapy program was successful in improving outcome in terms of symptom functioning, psychological well-being and changes in substance misuse. However, the findings derived from the analyses should be viewed with caution due to the absence of a control group who did not take part in the intervention but who nonetheless were assessed at the same time intervals as the completer group. In addition, a follow up of the dropout group would also have useful, as well as a longer-term assessment of the completer group to see if the positive effects of the intervention had been sustained. Integrated treatment for dual diagnoses should be consistent and comprehensive, where both the mental illness and the substance use disorder are treated simultaneously in a coordinated manner with interventions that address both illnesses (Drake, O'Neil, & Wallach, 2012). Ideally, in this model of care, health care professionals working in one clinical setting provide appropriate treatment for both disorders simultaneously. The current dual diagnosis program will continue to develop and expand with active service user involvement in that planning process.

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